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INTERNATIONAL PRELIMINARY EXAMINATION REPORT
(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 21.B0221.12WO.1 DR	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/PEA/416)	
International application No. PCT/T 03/00815	International filing date (day/month/year) 15.12.2003	Priority date (day/month/year) 20.12.2002
International Patent Classification (IPC) or both national classification and IPC B62M1/04		
Applicant BAUCE, Giovanni Battista		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 5 sheets, including this cover sheet.
- ☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).
- These annexes consist of a total of 11 sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the opinion
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand 16.07.2004	Date of completion of this report 16.02.2005
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized Officer Jung, W Telephone No. +49 89 2399-8284 

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/IT 03/00815

I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17))*):

Description, Pages

2-4, 6-10, 12	as originally filed
1, 5, 11	received on 20.01.2005 with letter of 19.01.2005

Claims, Numbers

1-6	received on 20.01.2005 with letter of 19.01.2005
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Drawings, Sheets

1/2	as originally filed
2/2	received on 20.01.2005 with letter of 19.01.2005

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:
- ☐ the drawings, sheets:

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5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	1-6
	No: Claims	-
Inventive step (IS)	Yes: Claims	1-6
	No: Claims	-
Industrial applicability (IA)	Yes: Claims	1-6
	No: Claims	-

2. Citations and explanations

see separate sheet

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

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Re Item V

**Reasoned statement with regard to novelty, inventive step or industrial applicability;
citations and explanations supporting such statement**

Reference is made to the following document:

D3: DE 43 43 723 A

The document D3 is regarded as being the closest prior art to the subject-matter of claim 1, and shows (the references in parentheses applying to this document):
A scooter comprising (among other things) first (18) and second (19) plates according to the preamble of claim 1,
whereby the elongated plates (18, 19) are disposed in mutual side by side relationship (cf. fig. 3) along the longitudinal vehicle axis, so as to exactly define the support surface designed to receive the rider's respective feet (at least in a riding condition), so as the rider can stand on the scooter keeping legs and feet closed together in side by side relationship.¹

The subject-matter of claim 1 differs from this known scooter in that the first and second plates are hinged on the base plate at a front region of the scooter in correspondence of a steering member.

The subject-matter of claim 1 is therefore new (Article 33(2) PCT).

The problem to be solved by the present invention may be regarded as to provide a scooter,

- a) which requires low operating forces and
- b) which enables an alternative support for the feet of an operator as well in driving

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¹ The lateral distance of the plates (18, 19) in figure 3 of D3 seems to be comparable to the lateral distance of plates (6) and (7) according to fig. 2 of the current application.

**INTERNATIONAL PRELIMINARY
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The solution to this problem proposed in claim 1 of the present application is considered as involving an inventive step (Article 33(3) PCT) for the following reasons:

The scooter in all embodiments of D3 is characterized by a foot support (25) in the front region of the scooter to enable a rest position of a driver.

There is no hint in the prior art nor is it obvious for a skilled person in the art to replace such a plane front rest support for the feet of an operator by an elongation of the pedal plates to the front region adjacent to a steering member to solve the above problem.

Claim 2-6 are dependent on claim 1 and as such also meet the requirements of the PCT with respect to novelty and inventive step.

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~~VEHICLE IN PARTICULAR~~ SCOOTERDescription

5 The present invention relates to a vehicle of a type moved by a user, such as a scooter.

~~However the subject matter of the invention can be utilised for any type of locomotion vehicle exploiting the action of an operator as the motive power.~~

10

It is known that common scooters presently widely on the market consist of a base frame or board designed to support a user or rider; the frame is equipped with a
15 first and second wheel rotatably in engagement with said frame in such a manner as to enable movement of the scooter itself.

The structures of known type are then provided with an
20 appropriate steering handlebar to enable the scooter to cover curved trajectories.

As regards movement, a scooter is pushed by the rider that puts one foot on the frame and pushes against the
25 ground with the other foot giving it an advancing movement.

In addition to the above described and well known type of scooter, scooters provided with additional features
30 have become available in recent times.

In a first type of these scooters use of an appropriate movement unit mounted on the fixed frame is provided that offers the rider the possibility of imparting an
35 advancing movement to the scooter without pushing

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accordance with the present invention;

- Fig. 2 is a partial view of a rear region of the scooter shown in Fig. 1;

~~Fig. 3 shows a possible wheel of bigger size than the wheel in Fig. 1 to be used in a scooter in accordance with the invention;~~

- Fig. 4 shows a first movable element in an upward end-of-stroke position and also shows part of the motion-transmitting unit;

10 - Fig. 5 shows the lever seen in Fig. 4 in a downward end-of-stroke position.

With reference to the drawings, a locomotion vehicle in accordance with the present invention has been
15 generally identified by reference numeral 1.

The embodiment illustrated in Fig. 1 in particular has the shape of a traditional scooter although it has many differences therefrom, as better specified in the
20 following.

Still with reference to Fig. 1, it is possible to see that the locomotion vehicle therein shown has the typical features of a scooter, i.e. it consists of a
25 base frame 2 with which a first and second wheels 3, 4 free to be driven in rotation around their axis are in engagement.

Then there is the presence of a steering member or
30 handlebar 5 set to allow engagement of the scooter by a rider through appropriate handles and also connected with the first front wheel 3 to suitably rotate the rotation axis thereof so as to enable the vehicle to travel along curved paths.

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movable element 7 (arranged in a mirror image symmetry with respect to the just described element) exactly carries out the same movement, thereby causing belt 16 to be dragged along as shown in Fig. 4 from the first free wheel 20 towards the horizontal intermediate member 22, to the intermediate members present exactly on the second movable element 7.

During this movement, a rotation of the free wheel 21 (opposite to the free wheel 20 with respect to the rear wheel 4) will be caused, said free wheel 21 in turn transmitting the rotatory motion to the back wheel 4 and therefore still causing an advancing movement of scooter 1.

It will be easily understood that the free wheels 20 and 21 are exclusively active during the rotation step in the advancing direction of the scooter and are idle during the opposite movement.

~~It will be appreciated that application of the present invention is obviously also possible to devices that greatly differentiate from a scooter.~~

~~In particular the same pushing device can be applied to vehicles provided with three or more wheels also of much bigger sizes than those of a current scooter (see the illustration in fig. 9, for example).~~ In addition, the motion-transmitting unit as described represents the preferred embodiment, but it could also be made using a different system for converting the reciprocating motion defined by the two plates into a corresponding rotatory motion of the rear wheel.

The invention achieves important advantages.

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C L A I M S

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~~1. A vehicle comprising:~~~~- a base frame (2);~~

- 5 ~~- at least two wheels (3, 4) in engagement with the
base frame (2) to allow movement of the vehicle itself;~~
~~- a motion-transmitting unit (8) associated with the
base frame (2) to drive at least one of said wheels (3,
4),~~

10 ~~characterised in that it further comprises at least one
first and one second element (6, 7) separated from each
other and movable with respect to the base frame (2),
said first and second movable elements (6, 7) being
active on the motion-transmitting unit (8) to allow at
15 least one of said wheels (3, 4) to be driven in
rotation thereby enabling the vehicle movement,~~

20 ~~2. A vehicle as claimed in claim 1, characterised in
that said first and second movable elements (6, 7)
define respective actuating surfaces disposed
substantially in side by side relationship with each
other with respect to a longitudinal extension axis
(10) of the vehicle.~~

25 ~~3. A vehicle as claimed in anyone of the preceding
claims, characterised in that the first and second
elements (6, 7) are movable in a reciprocating manner
close to and away from the base frame (2).~~

30 ~~4. A vehicle as claimed in anyone of the preceding
claims, characterised in that the first and second
movable elements (6, 7) are hinged on the base frame
(2) preferably at a front region (1a) of the vehicle.~~

35 ~~5. A vehicle as claimed in claim 4, characterised in~~

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1. A scooter comprising:

- a base frame (2) having an upper surface;
- two wheels (3, 4) in engagement with the base frame (2) to allow movement of the scooter itself;
- a motion-transmitting unit (8) associated with the base frame (2) to drive at least one of said wheels (3, 4);
- at least one first and one second plate (6, 7) separated from each other, superposed to the upper surface of the base frame (2) and movable in reciprocating manner between a point of minimum distance from the upper surface of the base frame (2) and a point of maximum distance from the upper surface of the base frame (2), said first and second movable plates (6, 7) being active on the motion-transmitting unit (8) to allow at least one of said wheels (3, 4) to be driven into rotation whereby enabling the scooter movement, the motion-transmitting unit (8) converting the reciprocating motion of the movable plates (6, 7) into a rotatory motion applied to the second wheel (4) and comprising at least one deformable element (16) directly in engagement with the first and second movable plates (6, 7) and also active on two free-wheels (20, 21) to transfer the motion received through the deformable element (16) to the second wheel (4) in an alternated matter;
- means (12) for synchronizing motion of said first and second movable plates (6, 7) comprising a fixed structure (13) emerging away from the upper surface of the base frame (2) and a deformable body (14) which is movable on the fixed structure (13) and is in engagement at its opposite ends with said first and second movable plate (6, 7), characterized in that the first and the second movable plates (6, 7) are hinged on the base frame (2) at a front region (1a) of the scooter in correspondence of a steering member (5) and are defined by elongated plates disposed in mutual side by side relationship along the longitudinal vehicle axis (10), so as to exactly define the support surface designed to receive the rider's respective feet, so as the rider can stand on the scooter keeping legs and feet closed to each other in side by side relationship.

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~~that the first and second movable elements (6, 7)~~
 alternately oscillate upwards and downwards with
 respect to their hinging (11) on the base frame (2), a
 point of maximum distance from the base frame (2) and
 5 maximum travel of the first movable element (6)
 corresponding to a point of minimum distance from the
 base frame (2) and minimum travel of the second movable
 element (7).

10 6. A vehicle as claimed in anyone of the preceding
 claims, characterised in that it further comprises
 means (12) for synchronising motion of said first and
 second movable elements (6, 7).

15 7. A vehicle as claimed in claim 6, characterised in
 that the synchronising means (12) comprises a fixed
 structure (13) emerging away from the base frame (2)
 and a deformable body (14), preferably a belt, which is
 movable on the fixed structure (13) and is in
 20 engagement at its ends with said first and second
~~movable elements (6, 7).~~

2. SCOOTER

~~19~~ ¹ ~~IV~~ A vehicle as claimed in claim ~~17~~, characterised in
 that it further comprises a roller (15) idly mounted on
 25 the fixed structure (13), the belt (14) running over
 said roller (15).

3. SCOOTER

~~19~~ ¹ ~~IV~~ A vehicle as claimed in anyone of the preceding
 claims, characterised in that it further comprises a
 30 steering member (5) active on the first wheel (3),
 preferably a front wheel, to allow the vehicle to
 travel over curved paths.

~~10. A vehicle as claimed in anyone of the preceding~~
 35 ~~claims, characterised in that the movable elements (6,~~

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~~7) are defined by elongated plates disposed in side by side relationship with each other along the longitudinal axis (10) of the vehicle, said plates (6, 7) being adapted to receive the respective feet~~
5 disposed in side by side relationship of a rider resting thereon.

11. A vehicle as claimed in anyone of the preceding
10 claims, characterised in that the motion-transmitting unit (8) is capable of converting the reciprocating motion of the movable elements (6, 7) into a rotatory motion transmitted to the second wheel (4), preferably a rear wheel.

15

12. A vehicle as claimed in anyone of the preceding claims, characterised in that the motion-transmitting unit (8) comprises at least one deformable element (16) in engagement with the first and second movable
20 elements (6, 7) and active at a rotation axis (18) of the second wheel (4).

^{4.} ^{SCOOTER}
~~13. A vehicle~~ as claimed in claim ¹ ~~11 or 12~~, characterised in that the motion-transmitting unit (8) further comprises a predetermined number of
25 intermediate members (19) ~~associated with~~ ^{ROUTED TO} the movable elements (6, 7) and the base frame (2), the deformable element (16) being movable on said intermediate members (19).

30

~~14. A vehicle as claimed in claim 11, 12 or 13, characterised in that the motion-transmitting unit (8) further comprises at least two further free wheels (20, 21) preferably fitted on the axis (18) of the second
35 wheel (4) to transfer to the second wheel (4), in an~~

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alternated manner, the motion received through the deformable element (16).

^{5.}
~~15~~ ^{SCOOTER} ⁴ ~~15~~ A vehicle as claimed in claim 15, characterised in
5 that the motion-transmitting unit (8) comprises at
least one, and preferably two, intermediate members
(19) for each movable element (6, 7) and at least one
and preferably two intermediate members (19)
10 corresponding to each movable element (6, 7) on the
base frame (2), a movement away from the base frame (2)
by the first movable element (6) causing dragging along
of part of the deformable element (16) from the second
movable element (7) to the first movable element (6)
and driving in rotation of a free wheel (20) and
15 consequently of the second wheel (4), a movement away
from the base frame (2) by the second movable element
causing a corresponding dragging along of part of the
deformable element (16) from the first movable element
(6) to the second movable element (7) and driving in
20 rotation of a second free wheel (21) and consequently
of the second wheel (4).

^{6.}
~~16~~ ^{SCOOTER} ⁴ ⁵ ~~16~~ A vehicle as claimed in anyone of claims 11 to 15,
characterised in that the motion-transmitting unit (8)
25 comprises a further intermediate member (22) to allow
movement of the deformable element (16) between the
first and second movable elements (6, 7).

~~17. A vehicle as claimed in anyone of the preceding~~
30 ~~claims, characterised in that it comprises three or~~
~~more wheels.~~

~~18. A vehicle as claimed in anyone of the preceding~~
~~claims, characterised in that it comprises at least one~~
35 ~~wheel of a diameter bigger than 10 cm, the same~~

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~~diameter as that of a common bicycle for example~~

19. A vehicle comprising:

- a base frame (2);

- 5 - at least two wheels (3, 4) in engagement with the base frame (2) to allow movement of the vehicle itself;
- a motion-transmitting unit (8) associated with the base frame (2) to drive at least one of said wheels (3, 4),

10 characterised in that it further comprises at least one first and one second element (6, 7) movable relative to the base frame (2) and active on the motion-transmitting unit (8) to allow at least one of said wheels (3, 4) to be driven in rotation, thereby
15 enabling movement of the vehicle, and in that said first and second movable elements (6, 7) define respective actuating surface arranged substantially in side by side relationship with each other with respect to a longitudinal extension axis (10) of the vehicle.

20

20. A scooter comprising:

- a base frame (2);

- at least two wheels (3, 4) in engagement with the base frame (2) to allow movement of the vehicle itself;

- 25 - a motion-transmitting unit (8) associated with the base frame (2) to drive at least one of said wheels (3, 4),

characterised in that it further comprises at least one first and one second element (6, 7) separated from each other and movable with respect to the base frame (2), said first and second movable elements (6, 7) being active on the motion-transmitting unit (8) to allow at least one of said wheels (3, 4) to be driven in rotation thereby enabling movement of the vehicle, and

35 ~~in that said first and second movable elements define~~

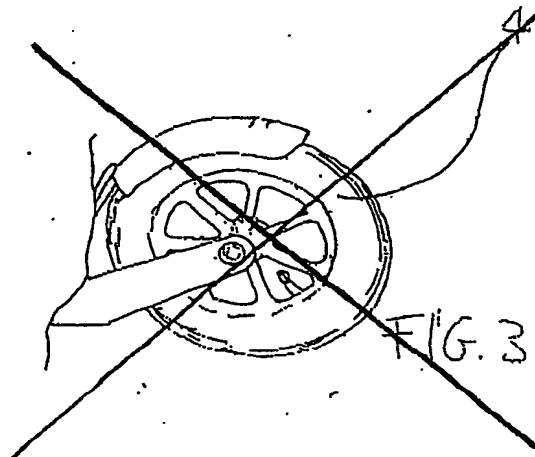
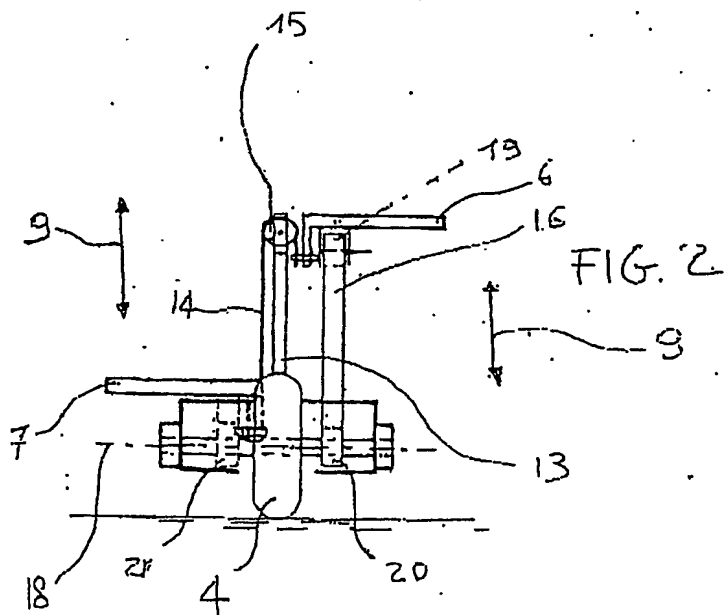
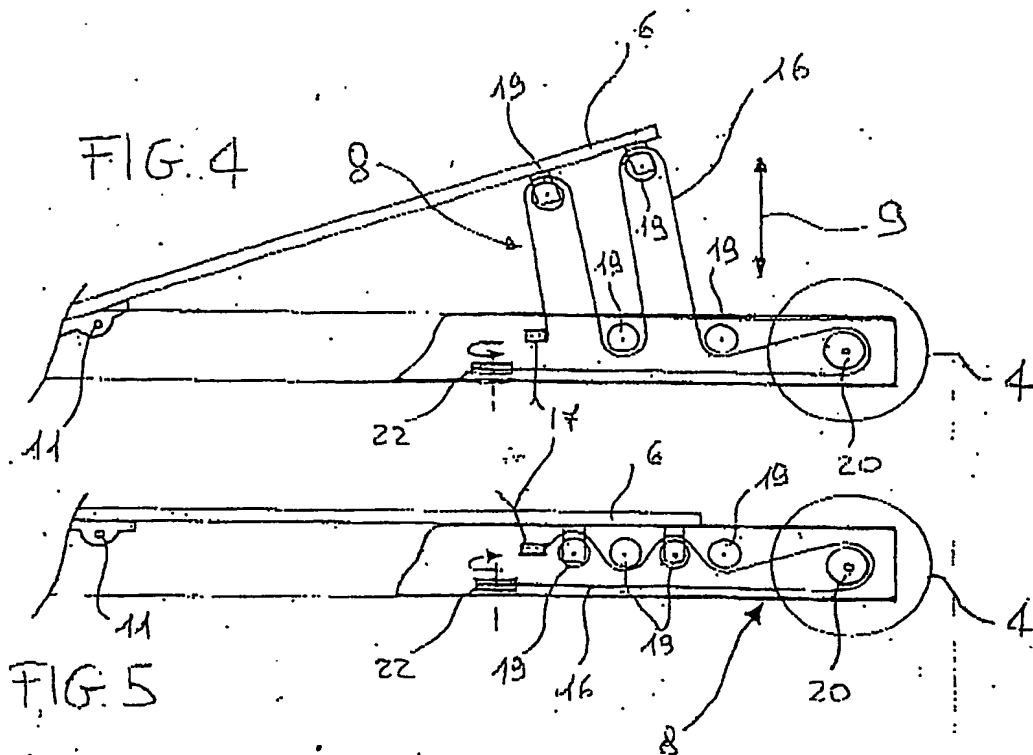
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~~respective actuating surfaces arranged substantially in~~
side by side relationship with each other with respect
to a longitudinal extension axis (10) of the vehicle,
the actuating surfaces being shiftable by the rider
5 ~~with a reciprocating motion.~~

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